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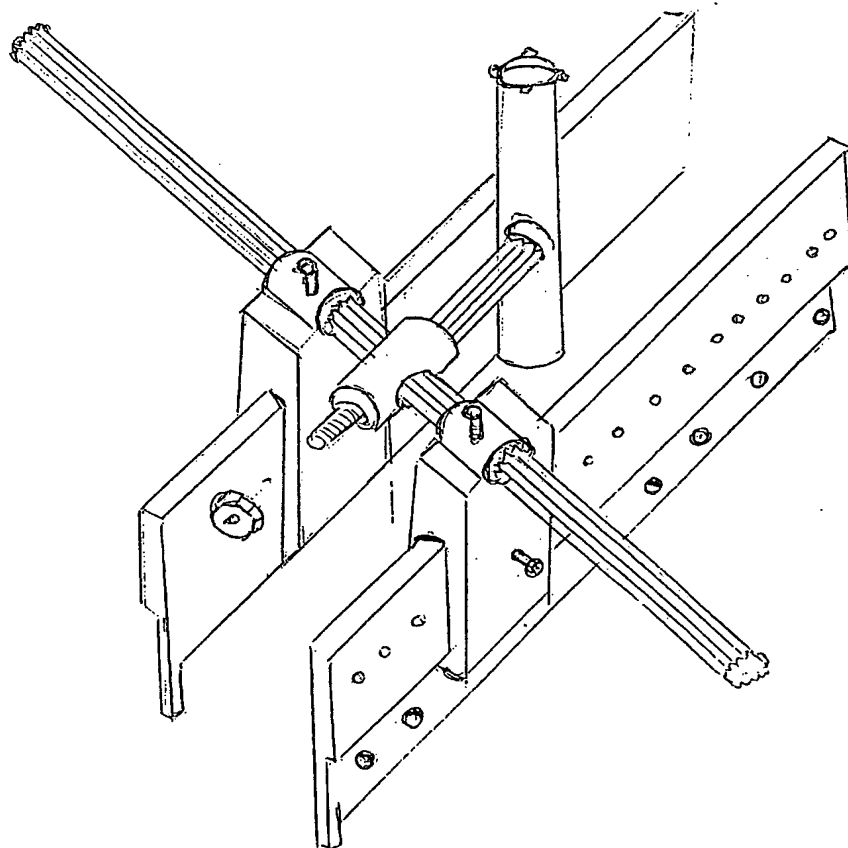
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- Declaration under Rule 4.17:
— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations

[Continued on next page]

(54) Title: DRILL JIG FOR LOCATING HOLES TO BE DRILLED IN A WORKPIECE



(57) Abstract: The invention is a guide arm for the use of electric drill. It is very precise, easily operated and has much potential. Sheet no. 1 is a drawing of the invention. Sheet no.2 is a drawing that represents the components disassembled. The invention is used for carpentry business (mobile furniture) to locate the position of the required holes. Sheet no. 9 illustrates the use of the arm in making a hole in a base or in a ceiling of a wardrobe. Sheet no. 10 illustrates its use in making a hole in a side which is to be placed on a base. Sheet no. 11 illustrates its use in placing wooden cylinders on the sides. Sheet no. 12 illustrates its use in placing a side on a base.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Drill jig for locating holes to be drilled in a workpiece.

Technical field

The invention is used for making carpentry, through the use of that arm as a guide for the electric drill, instead of using the electric drill without a guide.

Background art

It is an arm, which is easily operated, very precise and it has much potential it saves time and can achieve guaranteed results.

Disclosure of invention

It is composed of an arm which is used as a guide for the electric drill. It is very precise, easily operated of two arms. 11 and 11. 21 and 21 move to enter 11 and 11, and joined by the tack 67. And 75 and 75 enter 65 and 65 and locate the angles required along the axis of the two arm 11 and 11.

We insert 85 into 76 following determining the angle required, in a direction which is perpendicular to the two arms 11 and 11. The unit is fixed on a wooden base, or on the required side's thickness through the use of 71, and then we insert the electric drill's bite into 87.

Thus we can use the electric drill with this guide to obtain very precise accurate results see sheets no. 9, 10, 11 and 12.

Description of drawings

1. 11 and 11 they are two arms taking the shapes in sheet no. 1 and 2. Sheet no. 3 illustrates the projections.
 2. 21 and 21: they have the shape illustrated in sheet no. 1 and sheet no. 2 whereas sheet no. 5 illustrates the projections. 65 and 65 are two hollow cylinders, and are gear like. 21 and 21 enter 11 and 11 and are moved according to the required distance from 56 (starting guide)
 3. 76, 75 & 75 see sheets no. 1 and 2. See sheet no. 6 to find the projections.
- 76 is a hollow cylinder it is gear like to allow 85 to enter.

75 and 75 are two solid cylinders, and they are gear like, externally. They enter 65 and 65, and 61 is the nut.

4. 87 and 85: see sheets no.1, 2 and see sheet no.7, 8 for the projections.

87 is a hollow cylinder which receives the electric drill's bite to make holes as required. 85 is a solid cylinder, and it is gear like externally

Best mode for carrying out the invention:

This invention can be carried out by using the suitable materials, which are up to the factory.

Industrial applicability

This invention can be used in any manufacturing tasks which require making holes, precisely.

A Precise Easily Arm for Electric Drill

Technical field

The invention is used for making carpentry, through the use of that arm as a guide for the electric drill, instead of using the electric drill without a guide. it is used for making the hole required in the base and the ceiling of a wardrobe, and for making holes in the sides, and placing wooden cylinders in the sides, and placing the side on the base, properly. see sheets no. 1,2,6,7,8 and 9

background art

it is an arm, which is easily operated, very precise and it has much potential it saves time and can achieve guaranteed results.

Disclosure of invention

It is composed of an arm which is used as a guide for the electric drill. It is very precise, easily operated of two arms. 11 and 11. See sheets no 1,2 &3 (illustration of projections) sheet no.1 and 2 and sheet no. 4 illustrate their projections 21 and 21 move to enter 11 and 11, and joined by the tack 67 which enters the nut's hole in the arm, 21 enters to the right and 21 enters to the left. And 75 and 75 enter 65 and 65 and locate the angles required along the axis of the two arm 11 and 11 we determine the distance between 11 and 11 then we fasten by the two tacks 66 and 66 see sheets no. 1 and 2. we insert 85 into 76 following determining the angle required, in a direction which is perpendicular to the two arms 11 and 11. then we fasten the tack 86 by the nut 61 to stabilize the position. The unit is fixed on a wooden base, or on the required side's thickness through the use of 71, and then we insert the electric drill's bite into 87

Thus we can use the electric drill with this guide to obtain very precise accurate results see sheets no. 9,10,11 and 12.

Description of drawings

11 and 11 they are two arms taking the shapes in sheet no. 1 and 2. sheet no. 3 illustrates the projections the arms 11 and 11 have graduated holes 55 (the holes are designed for the tack 67 is entered ...nuts), at different distances: 1,2 into the holes according to the required distance from the start point 56. also they have lower holes 57 which the unit 71 is fixed, to fix a clamp upon use, to clamp the instrument (arm) to the woods to be perforated.

2. 21 and 21: they have the shape illustrated in sheet no. 1 and sheet no. 2 whereas sheet no. 5 illustrates the projections 65 and 65 are two hollow cylinders, and are gear like, to allow 75 and 75 to make angles along the axis of the two arms 11 and 11 the tacks 66 and 66 are for fastening, after adjusting the dimensions of 76 and 65 and 65 and adjusting the angle in the direction of the axis of the two arms 11 and 11.

21 and 21 enter 11 and 11 and are moved according to the required distance from 56 (starting guide) then 21 and 21 are fastened by two tacks 67 and 67

3. 76, 75 & 75 see sheets no. 1 and 2. see sheet no.6 to find the projections.

76 is a hollow cylinder it is gear like to allow 85 to enter and to make angles in the direction vertical to the arms 11 and 11 75 and 75 are vertical to the axis of the cylinder 76.

75 and 75 are two solid cylinders, and they are gear like, externally. They enter 65 and 65 to give angles in the direction of the axis 11 and 11

61 is the nut which joins 85 after entering 76 after determining the angle required, in a direction vertical to the arms 11 and 11.

(The internal diameter of 76 = external diameter of 85)

The internal diameter of 65 = external diameter of 75) 4. 87 and 85: see sheets no. 1,2 and see sheet no. 7,8 for the projections.

87 is a hollow cylinder which receives the electric drill's bite to make holes as required and has part 51, see sheet no. 8. it has external diameters which are equal to the inner diameter of cylinder 87. it has different inner radii

so we use a large number of electric drill's bites according to our needs 51 enters 87, see sheet no. 2 and sheet no. 8.

There are a large number of 51 with different inner diameters and the external diameter remains the same

85 is a solid cylinder, and it is gear like externally, to allow making angles perpendicular to the axis of the two arms 11 and 11, when 85 enters 76.

85 is a cylinder which is perpendicular to cylinder 87. 85 ends with a thinner cylinder 86 which acts as tack to be fastened to nut 61 after determining the required angle That is to mean, 85 enters 76 and then, it is fastened by nut 61

5- fig (21), fig (31), fig (41), fig (51), fig (61) can be more than twice can be repeated

Best mode for carrying out the invention

This invention can be carried out by using the suitable materials, which are up to the factory.

Industrial applicability

This invention can be used in any manufacturing tasks which require making holes, precisely

Sample abstract page

CLAIMS

1. This unit (arm) allows making holes in the sides, bases, and ceilings in the carpentry upon making furniture, to facilitate making holes although presence of different thicknesses to be perforated through opening or closing it. By opening the two tacks 66 and 66 and adjusting according to required thickness then we fast the two tacks, thus it is fit for making holes in any thickness, and not confined to one thickness.
 2. This unit (arm) allows upon being used with the electric drill changing the distance from the start point 56 by opening the two tacks 67 and 67 then fastening them according to the required distance.
 3. This unit (arm) allows obtaining a large number of angles in the direction of axis of the two arms 11 and 11, by changing the position of 75 and 75 inside 65 and 65, then fastening the two tacks 66 and 66 according to the angle required.
 4. This unit (arm) allows obtaining a large number of angles in the direction of the axis perpendicular to 11 and 11, by changing the position of 85 inside 76, then fastening by the nut 61 according to the angle required.
- If we suppose that we obtain:
- A- x angle in the direction of 11 and 11
 - B- y angle in the direction perpendicular to 11 and 11 then we obtain a number of angle $s=xy$ (Angle)
5. This unit (arm) allows the using of a large number of electric drill's bites which enter into 87, by changing the units 51 (51 a large number of 51).
- 51 has different inner diameters and constant external diameter which enter into 87 tightly. Thus we use different electric drill's bites: 4mm, 5mm, and 6mm ... etc.

AMENDED CLAIMS

[Received by the International Bureau on 23 April 2004 (23.04.04):
original claims 1-5 replaced by amended claims claims 1-9]

- (1) The invention is a fine arm for the electric drill , with multiple uses on and easily operated.

This arm is used as one unit , and none of its parts can be used separately.

It is characterized by being able to be adjusted before use according to our needs .

It is characterized by having several cylinders installed on , see fig 87 , fig 51 which enter into fig 87.

It is characterized by it ability to make holes at any poin in the thickness.

It is characterized at any point away from the beginning of the arm.

It is characterized by it ability to make holes with many angles in the direction of the axis of the arm.

It is characterized by it ability to make holes with many angles , in the direction perpendicular to the axis of the arm.

It is characterized by it ability to make holes with angles in both of the aforementioned directions.

It is characterized by it ability to make holes with different diameters.

- (2) The invention is a fine arm for the electric drill , with multiple uses, and easily operated.

This arm is used as one unit , and none of its parts can be used separately.

It is characterized by being able to be adjusted before use according to our needs .

It is characterized by having several cylinders installed on , see fig 87 , fig 51 which enter into fig 87.

It is characterized by it ability to make holes at any poin in the thickness.

It is characterized at any point away from the beginning of the arm.

It is characterized by its ability to make holes with many angles in the direction of the axis of the arm.

It is characterized by its ability to make holes with many angles, in the direction perpendicular to the axis of the arm.

It is characterized by its ability to make holes with angles in both of the aforementioned directions.

It is characterized by its ability to make holes with different diameters.

Upon using this arm, it is characterized by: it should be adjusted before use.

It contains more than one, see fig 87 which enters into fig 51, thus allowing the electric drill to make holes more than once, after fixing the arm on each side, then it is used to make holes in the bases after fixing it on each base. That is to mean, the arm is adjusted according to A, B, C and D.

A. The dimension required from the beginning of the arm.

B. The thickness required.

C. The angle required, in the direction of the arm's axis, or in the direction perpendicular to the arm's axis or, in both of the aforementioned directions.

D. The diameter required, using a bite which is equal to it.

After adjusting the arm

Firstly (Sides): We fix the arm on the side's thickness required, then we make holes by the electric drill, thus we obtain the number of holes required in the side without moving the arm on the side.

This method is used for all the sides, to obtain holes in them. We place the cylinder into the holes, thus the holes are made accurately and this doesn't take time and effort.

Unlike prior art , where the unit is moved on the side to obtain one hole every time , and this takes time , effort and increasing the probability of error.

Secondly (Bases) or ceiling

The arm is fixed on the base or the ceiling after adjusting it as required , then we make holes by the electric drill , to obtain the holes in the sites required exactly , unlike the prior art.

We place the side over the base , the cylinders of the sides enter thoroughly in the holes of the bases .

That is to mean , the arm is adjusted , then it is used for any number of sides and bases.

(3) The invention is a fine arm for the electric drill , with multiple uses, and easily operated.

This arm is used as one unit , and none of its parts can be used separately.

It is characterized by being able to be adjusted before use according to our needs .

It is characterized by having several cylinders installed on , see fig 87 , fig 51 which enter into fig 87.

It is characterized by it ability to make holes at any poin in the thickness.

It is characterized at any point away from the beginning of the arm. -

It is characterized by it ability to make holes with many angles in the direction of the axis of the arm.

It is characterized by it ability to make holes with many angles , in the direction perpendicular to the axis of the arm.

It is characterized by it ability to make holes with angles in both of the aforementioned directions.

It is characterized by its ability to make holes with different diameters.

It is characterized by presence of more than one cylinder installed on , see fig 87 and fig 51 which enters into fig 87 , thus allowing making more than hole every time , whether in the side or the base .

Up on fixing the arm on the side or the base , we make the holes required once , with out moving the arm ,therefore fulfilling precision and saving effort and time.

(4) The invention is a fine arm for the electric drill , with multiple uses, and easily operated.

This arm is used as one unit , and none of its parts can be used separately.

It is characterized by being able to be adjusted before use according to our needs .

It is characterized by having several cylinders installed on , see fig 87 , fig 51 which enter into fig 87.

It is characterized by its ability to make holes at any point in the thickness.

It is characterized at any point away from the beginning of the arm.

It is characterized by its ability to make holes with many angles in the direction of the axis of the arm.

It is characterized by its ability to make holes with many angles , in the direction perpendicular to the axis of the arm.

It is characterized by its ability to make holes with angles in both of the aforementioned directions.

It is characterized by its ability to make holes with different diameters.

It is characterized by its ability to making a hole in the thickness at any point in the thickness as required ; in the middle or whatever or whatever. It is always adjusted equal to the side's thickness.

This unit (arm) allows making holes in the side's bases , and ceiling in the carpentry up on making furniture , as it facilitates making holes through the presence of different thicknesses to be perforated through opining or closing it. By opining the two tacks 66 and 66 and adjusting according to the required thickness , then we fast the two tacks , thus it is fit for making holes in any thickness , as it is not confined to one thickness.

That is to mean :

- a. It is opened and closed according to the required thickness (perpendicularly to the arm's axis)
- b. The center of the hole is determined in relation to the thickness as required . i . e, the center is moving (The hole's center is moving perpendicularly to the arm's axis).

prior art , where the thickness and the center ~~is~~ non moving.

- (5) The invention is a fine arm for the electric drill , with multiple uses, and easily operated.

This arm is used as one unit , and none of its parts can be used separately.

It is characterized by being able to be adjusted before use according to our needs .

It is characterized by having several cylinders installed on , see fig 87 , fig 51 which enter into fig 87.

It is characterized by it ability to make holes at any poin in the thickness.

It is characterized at any point away from the beginning of the arm.

It is characterized by its ability to make holes with many angles in the direction of the axis of the arm.

It is characterized by its ability to make holes with many angles, in the direction perpendicular to the axis of the arm.

It is characterized by its ability to make holes with angles in both of the aforementioned directions.

It is characterized by its ability to make holes with different diameters.

It is characterized by its ability to make holes at any point from the start point of the arm this unit (arm) allows up on using with the electric drill to change the distance from the start point drill to change the distance from the start point 56 by opening the two tacks 67 and 67, then fastening them according to the required distance. i.e, the distance from the start point is changes as required. Thus it is unlike prior art in which the distance is change by moving the unit each time.

(6) The invention is a fine arm for the electric drill, with multiple uses, and easily operated.

This arm is used as one unit, and none of its parts can be used separately.

It is characterized by being able to be adjusted before use according to our needs.

It is characterized by having several cylinders installed on, see fig 87, fig 51 which enter into fig 87.

It is characterized by its ability to make holes at any point in the thickness.

It is characterized at any point away from the beginning of the arm.

It is characterized by its ability to make holes with many angles in the direction of the axis of the arm.

It is characterized by its ability to make holes with many angles , in the direction perpendicular to the axis of the arm.

It is characterized by its ability to make holes with angles in both of the aforementioned directions.

It is characterized by its ability to make holes with different diameters.

It is characterized by its ability to allow obtaining a large number of angles in the direction of the axis of the two arms 11 and 11 , by changing the position of 75 and 75 inside 65 and 65 , then fastening the two tacks 66 and 66 according to the angle required.

(7) The invention is a fine arm for the electric drill , with multiple uses, and easily operated.

This arm is used as one unit , and none of its parts can be used separately.

It is characterized by being able to be adjusted before use according to our needs .

It is characterized by having several cylinders installed on , see fig 87 , fig 51 which enter into fig 87.

It is characterized by its ability to make holes at any point in the thickness.

It is characterized at any point away from the beginning of the arm.

It is characterized by its ability to make holes with many angles in the direction of the axis of the arm.

It is characterized by its ability to make holes with many angles , in the direction perpendicular to the axis of the arm.

It is characterized by its ability to make holes with angles in both of the aforementioned directions.

It is characterized by its ability to make holes with different diameters.

It is characterized by its ability to allow obtaining a large number of angles in the direction of the axis, perpendicularly to 11 and 11, by changing the position of 85 inside 76, then fastening by the nut 61 according to the angle required.

(8) The invention is a fine arm for the electric drill, with multiple uses, and easily operated.

This arm is used as one unit, and none of its parts can be used separately. It is characterized by being able to be adjusted before use according to our needs.

It is characterized by having several cylinders installed on, see fig 87, fig 51 which enter into fig 87.

It is characterized by its ability to make holes at any point in the thickness.

It is characterized at any point away from the beginning of the arm.

It is characterized by its ability to make holes with many angles in the direction of the axis of the arm.

It is characterized by its ability to make holes with many angles, in the direction perpendicular to the axis of the arm.

It is characterized by its ability to make holes with angles in both of the aforementioned directions.

It is characterized by its ability to make holes with different diameters.

It is characterized by its ability to make holes in both of the aforementioned directions.

If we suppose that we obtain :

a- α angle in the direction of 11 and 11.

b- β angle perpendicular to 11 and 11, then we obtain a number of angles $s = \alpha \beta$ (angle).

(9) The invention is a fine arm for the electric drill , with multiple uses, and easily operated.

This arm is used as one unit , and none of its parts can be used separately.

It is characterized by being able to be adjusted before use according to our needs .

It is characterized by having several cylinders installed on , see fig 87 , fig 51 which enter into fig 87.

It is characterized by it ability to make holes at any poin in the thickness.

It is characterized at any point away from the beginning of the arm.

It is characterized by it ability to make holes with many angles in the direction of the axis of the arm.

It is characterized by it ability to make holes with many angles , in the direction perpendicular to the axis of the arm.

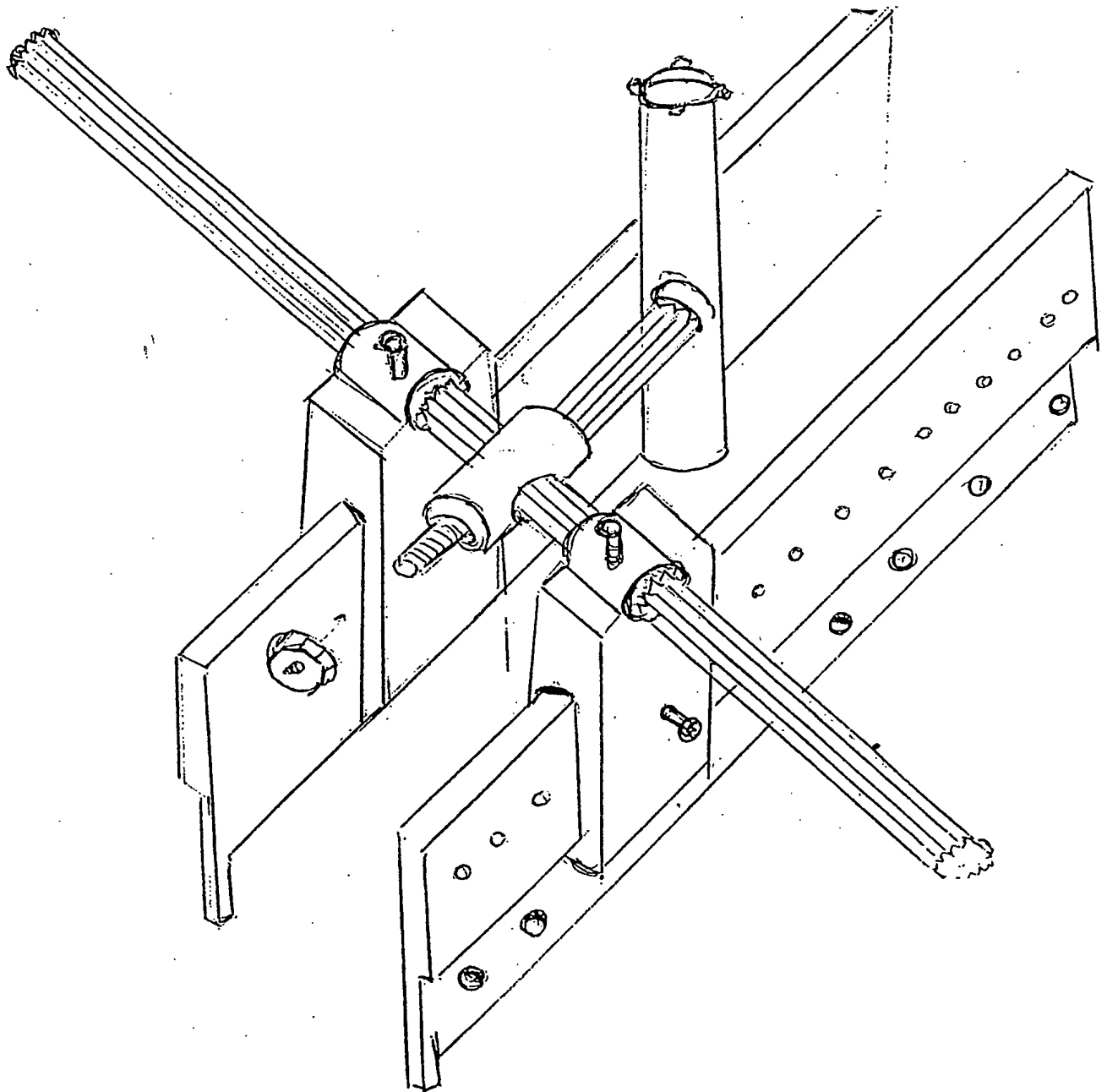
It is characterized by it ability to make holes with angles in both of the aforementioned directions.

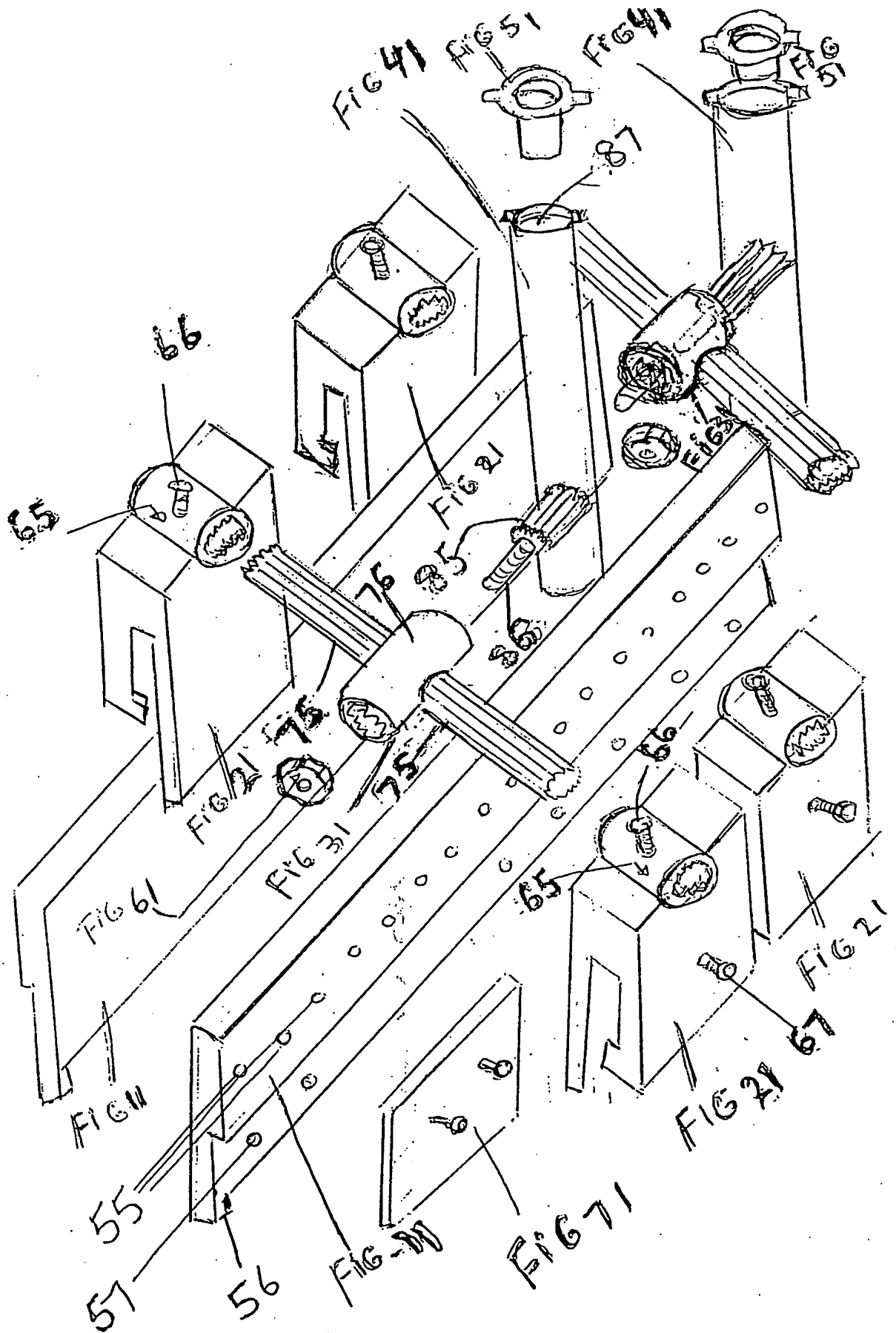
It is characterized by it ability to make holes with different diameters.

This unit (arm) allows using a large number of the bites of the electric drill , which enter into 87 by changing the units 51 (51 a large number of 51).

51 has different inner diameters and constant external diameter which enter into 87 tightly. Thus we use different electric drill's bites :

4 mm , 5 mm , and 6 mm Etc .





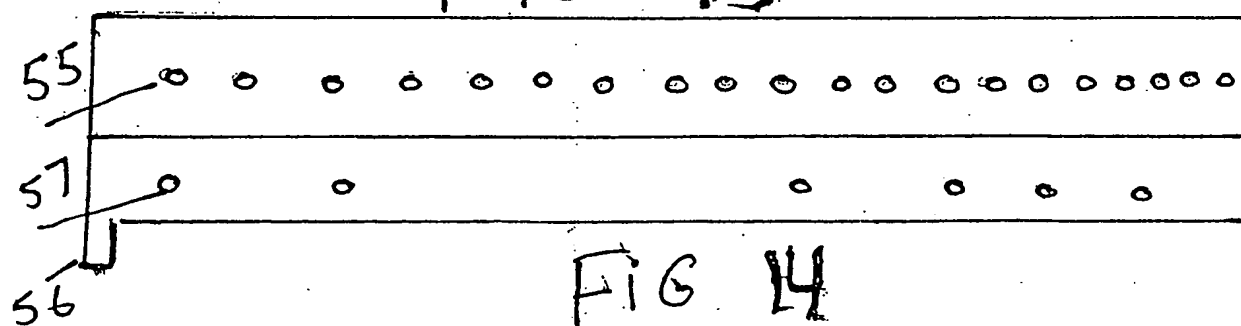
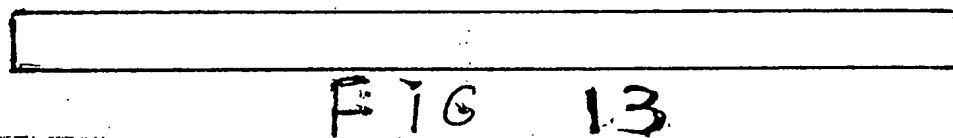
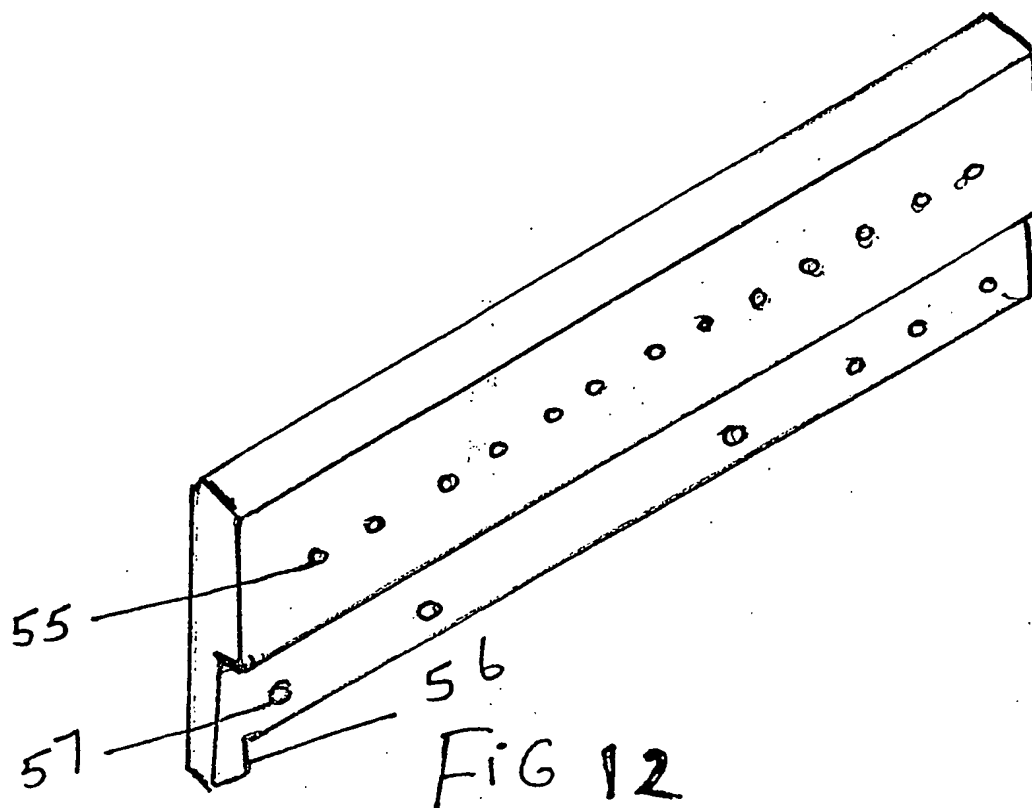


FIG 71

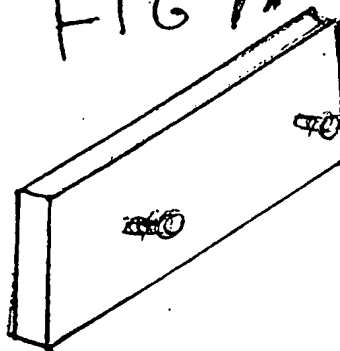


FIG 72

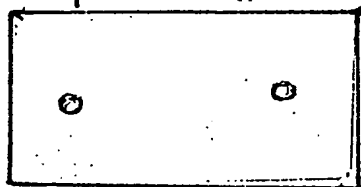


FIG 73

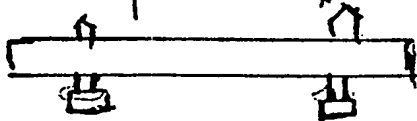


FIG 74



FIG 21

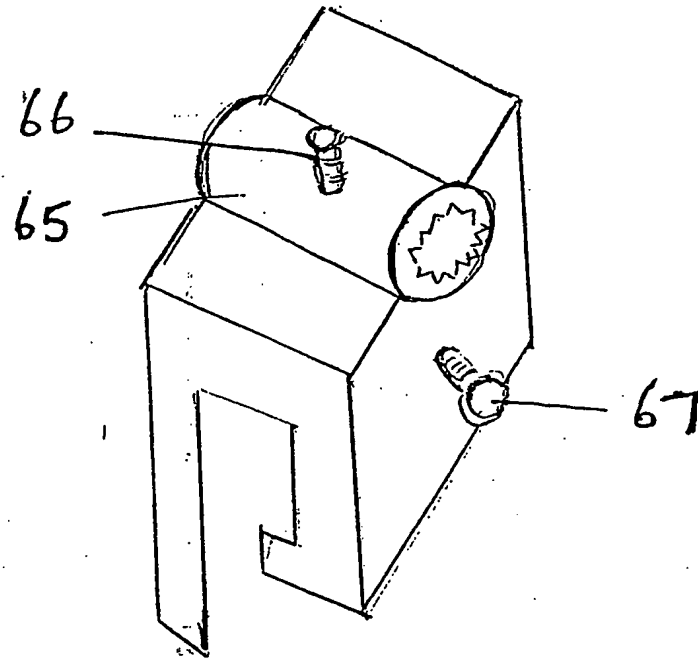


FIG 22

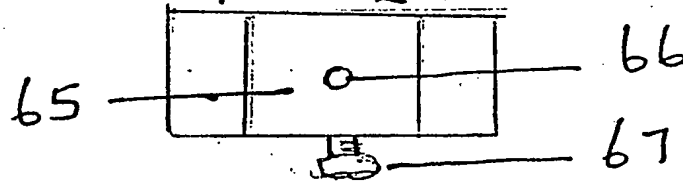


FIG 23

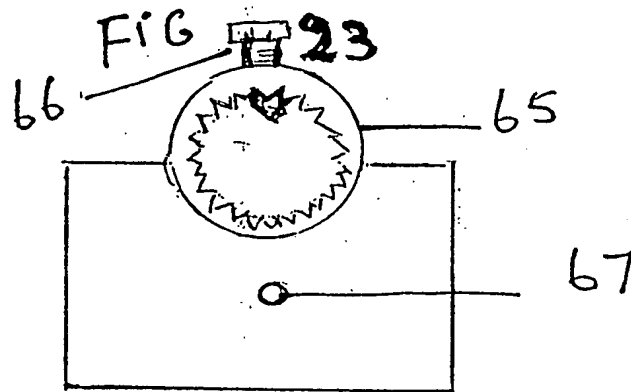


FIG 24

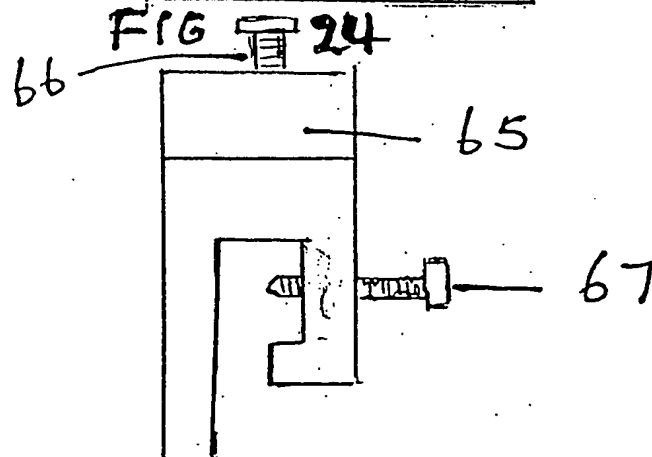


FIG 31

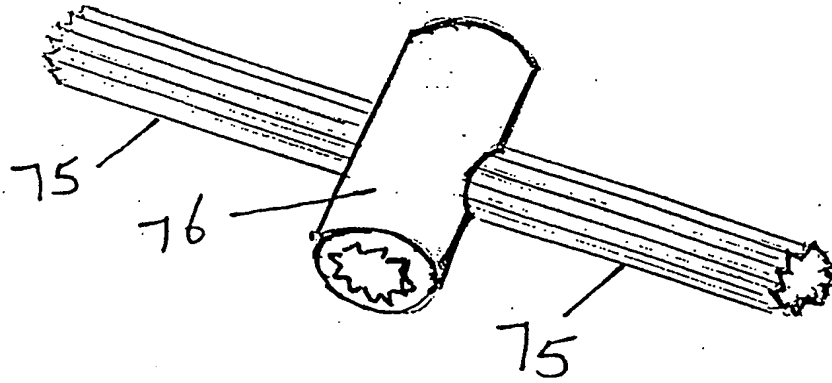


FIG 32

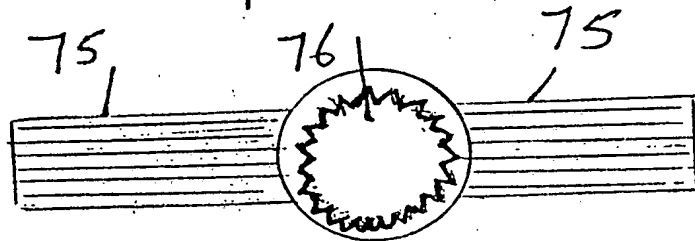


FIG 33

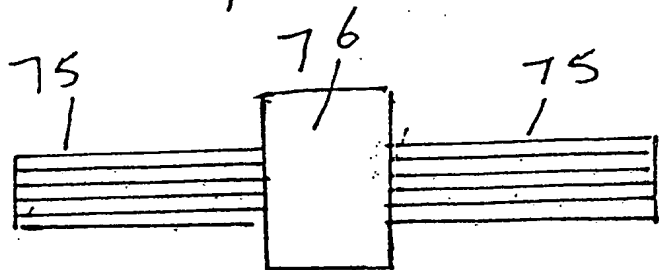


FIG 34

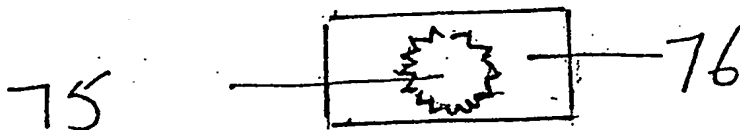


FIG 41

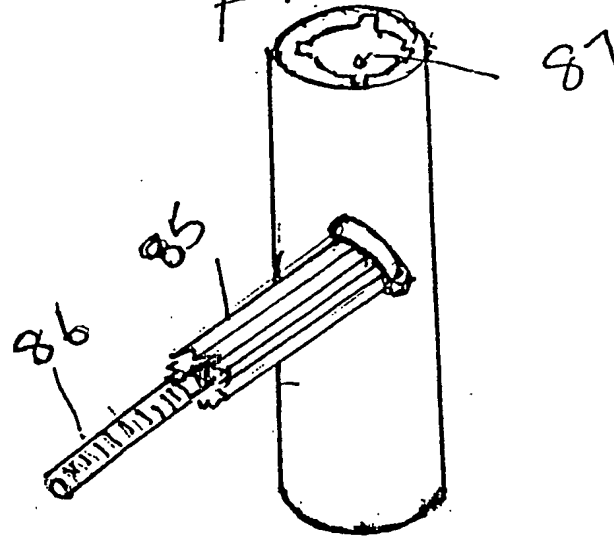


FIG 42

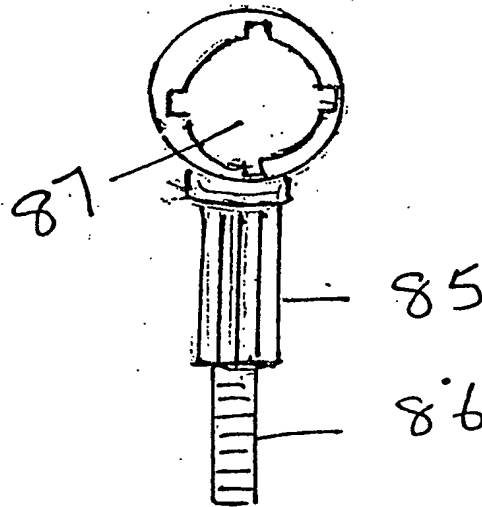
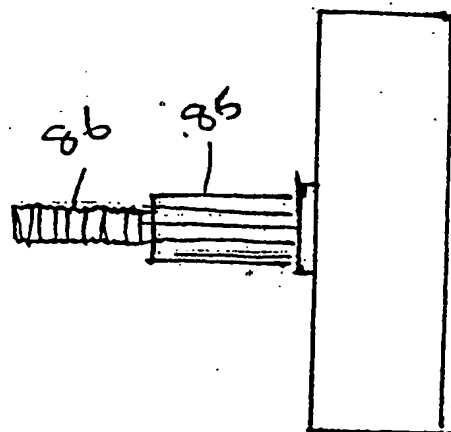


FIG 43



8/12

FIG 44

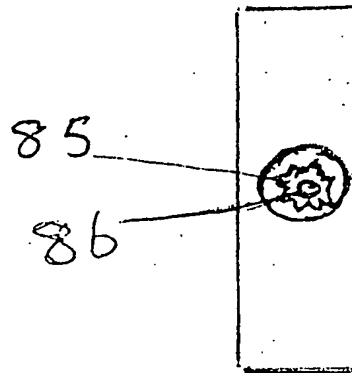


FIG 51

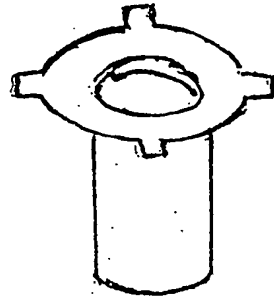


FIG 52

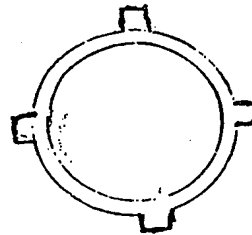
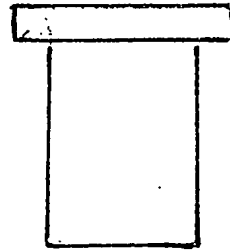
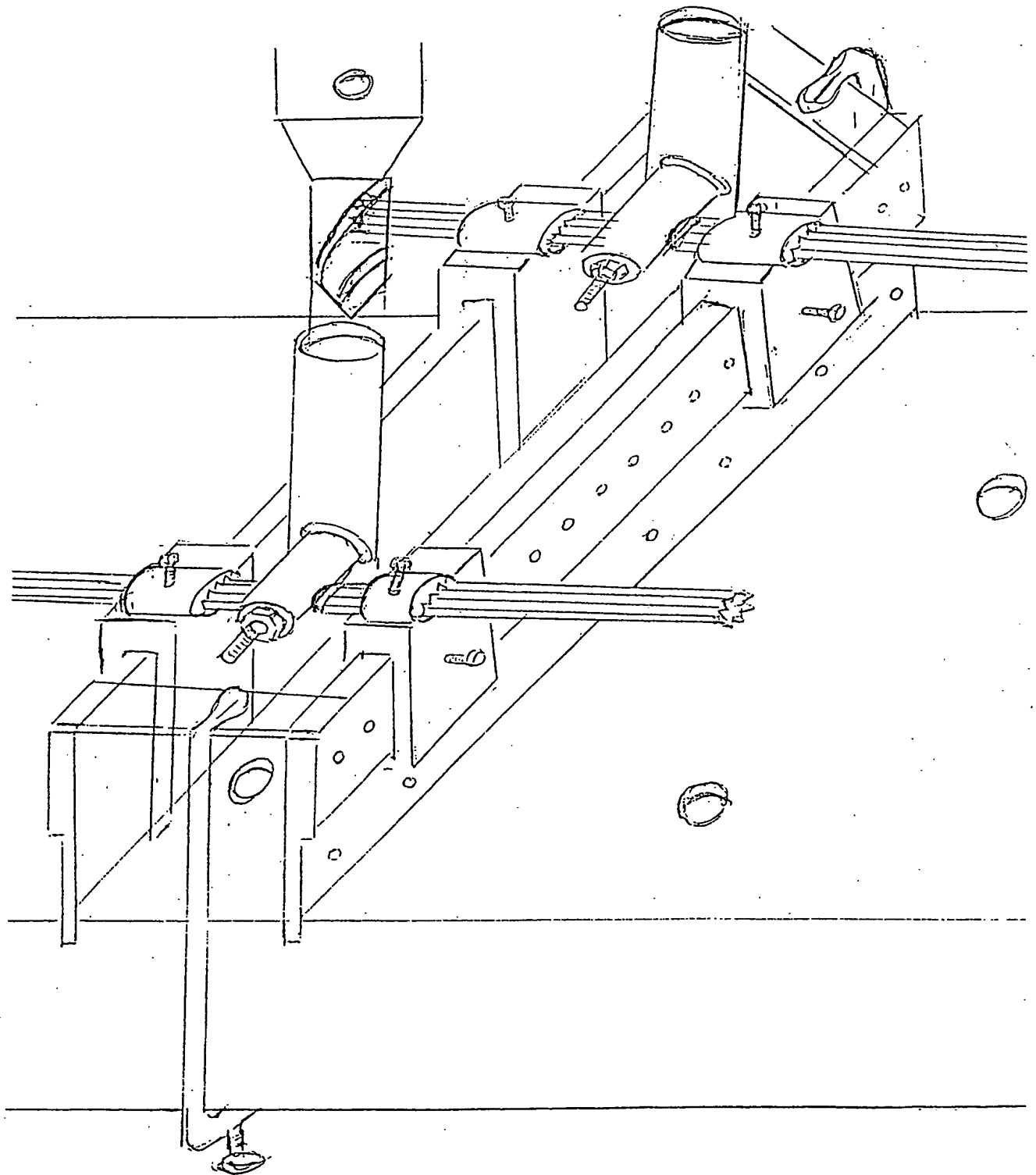
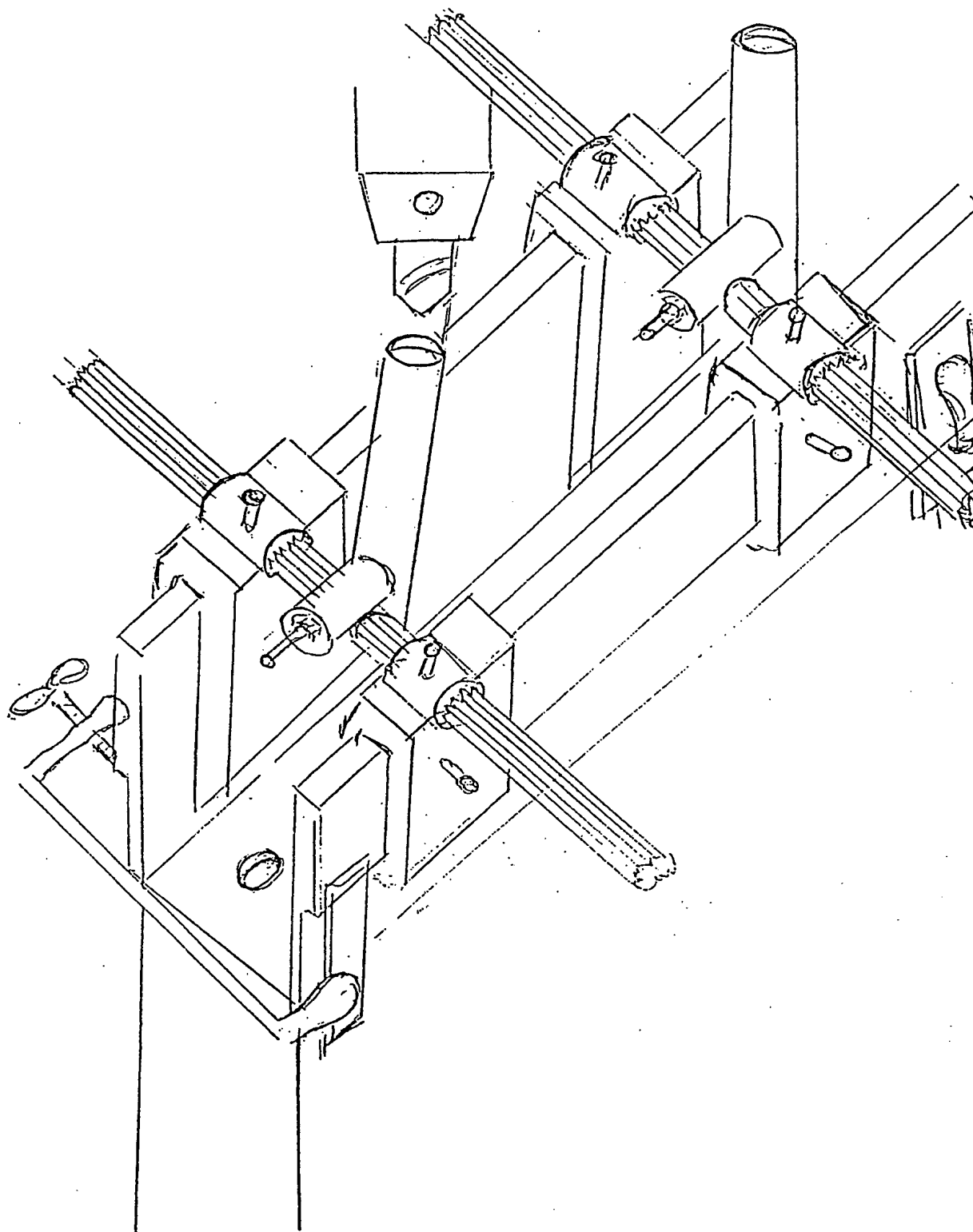
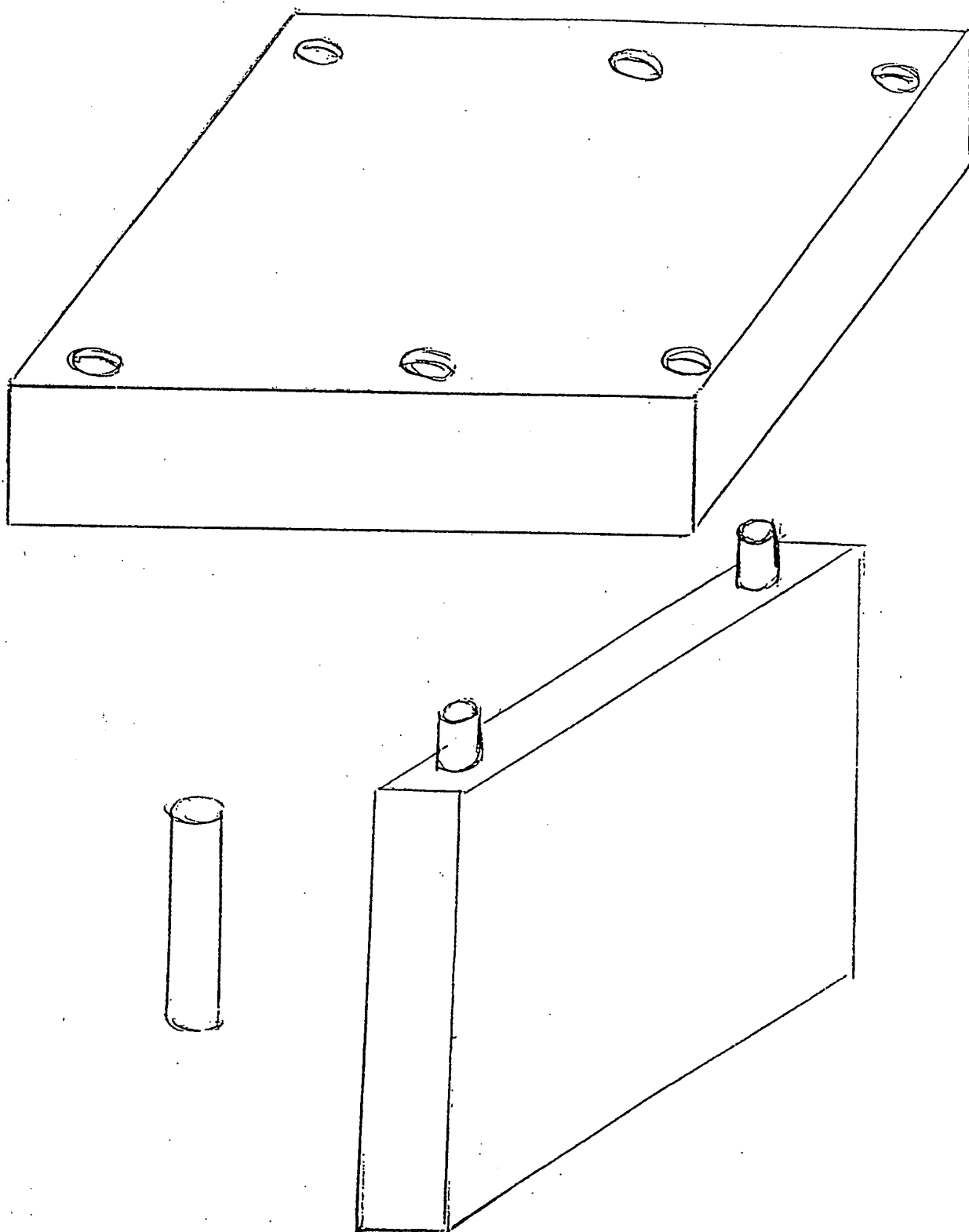


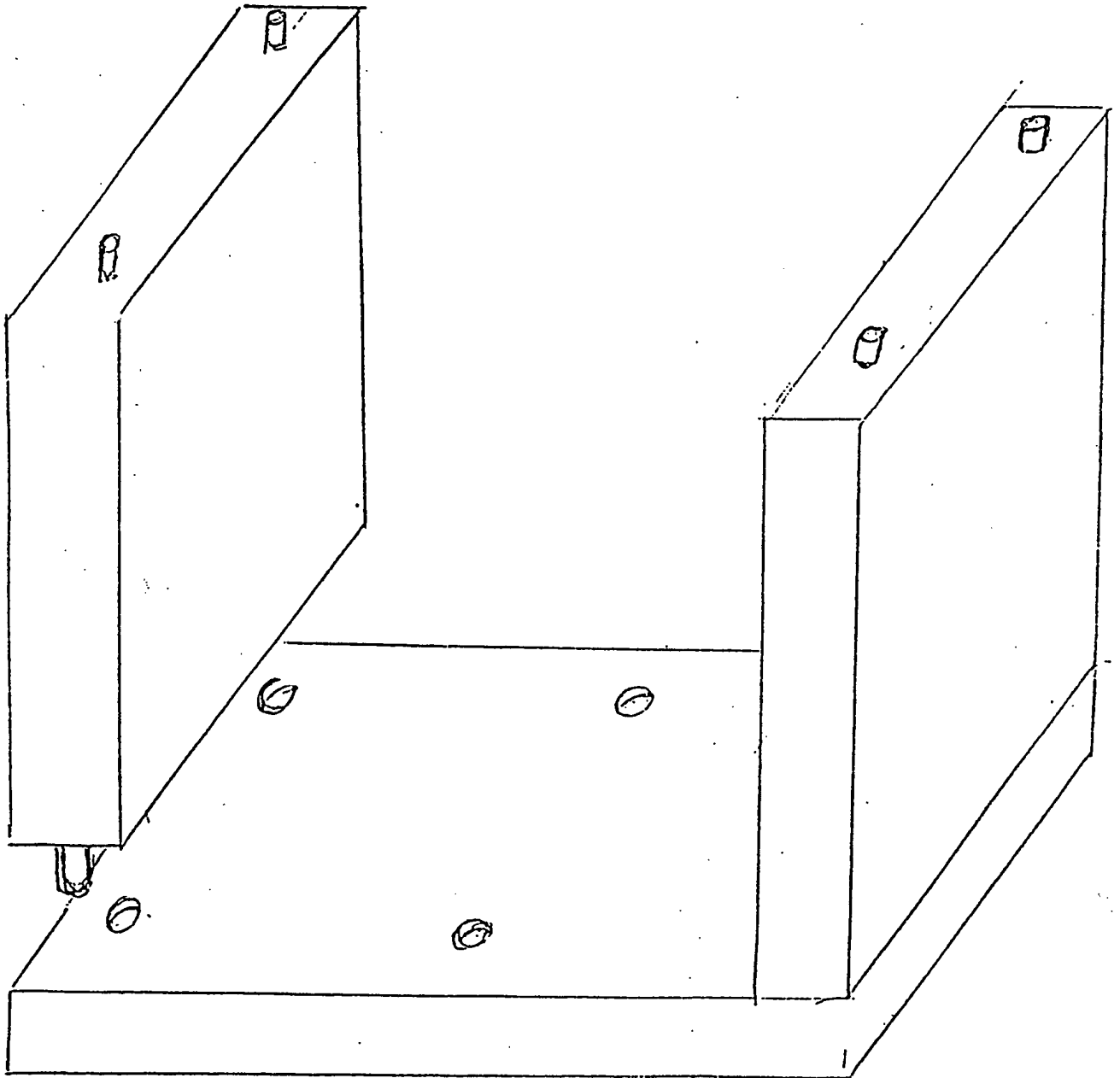
FIG 53











INTERNATIONAL SEARCH REPORT

International application No.
PCT/EG 03/00008-0

CLASSIFICATION OF SUBJECT MATTER

IPC⁷: B23B 49/02, B27C 3/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC⁷: B23B 45/00, B23B 47/00, B23B 49/00, B25H 1/00, B27C 3/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 2673133 A1 (SITUB) 28 August 1992 (28.08.92) <i>figs. 1,3.</i>	1-5
A	US 3465620 A (C.W. HILBURN) 9 September 1969 (09.09.69) <i>figs. 1,2,5.</i>	1-5
A	US 3738766 A (ELDER, Jr.) 12 June 1973 (12.06.73) <i>fig. 1.</i>	1-5
A	US 5308199 A (JUANG) 3 May 1994 (03.05.94) <i>figs. 5,7,8,10.</i>	1-5

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

„A“ document defining the general state of the art which is not considered to be of particular relevance

„E“ earlier application or patent but published on or after the international filing date

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„O“ document referring to an oral disclosure, use, exhibition or other means

„P“ document published prior to the international filing date but later than the priority date claimed

„T“ later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

„X“ document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

„Y“ document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

„&“ document member of the same patent family

Date of the actual completion of the international search

3 February 2004 (03.02.2004)

Date of mailing of the international search report

10 March 2004 (10.03.2004)

Name and mailing address of the ISA/AT

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/EG 03/00008-0

Patent document cited in search report			Publication date	Patent family member(s)		Publication date
FR	A	2673133	1992-08-28	none		
US	A	3465620	1969-09-09	none		
US	A	3738766	1973-06-12	none		
US	A	5308199	1994-05-03	GB	A 2280626	1995-02-08